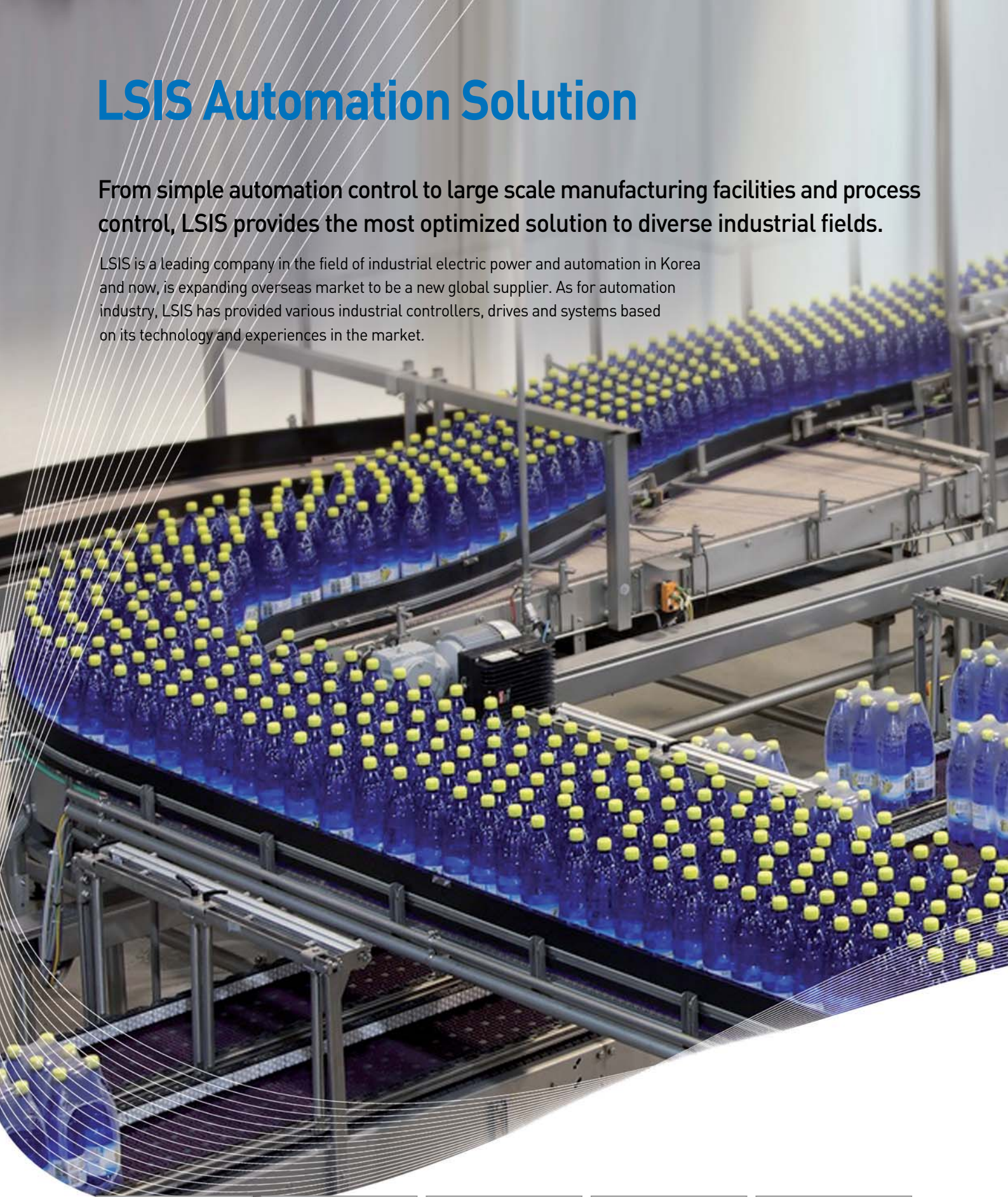
Packaging Automation Solution

LSIS Automation Solution

From simple automation control to large scale manufacturing facilities and process control, LSIS provides the most optimized solution to diverse industrial fields.

LSIS is a leading company in the field of industrial electric power and automation in Korea and now, is expanding overseas market to be a new global supplier. As for automation industry, LSIS has provided various industrial controllers, drives and systems based on its technology and experiences in the market.



PLC

HMI

Servo

LV Drive

MV Drive

One Stop Packaging Solution

Providing Complete Packaging Products Including PLC/HMI/AC Drive/Servo Motor & Drive at Once

LSIS offers diverse industrial solutions by manufacturing various automation products from a controller to a device such as PLC(Programmable Logic Controller), HMI(Human Machine Interface), servo motor & drives and AC drives (low/medium voltage).

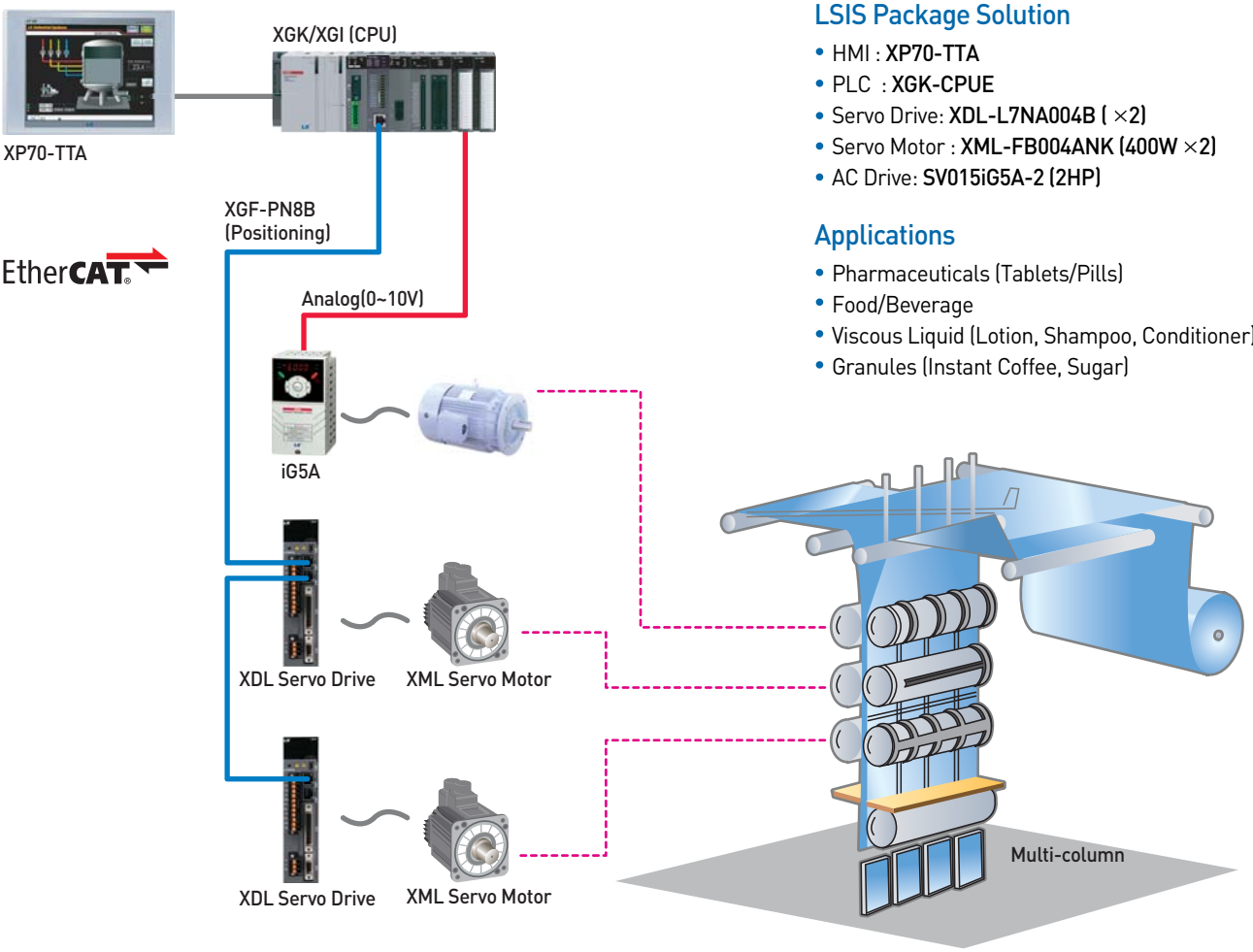
Particularly, while covering a range from programmable automation control to motion devices, LSIS provides optimized solution for packaging industry and takes advantage of supplying all needed products to customers at one time.

Also, as many daily use products are formed in various way of packing, packaging machines have been diversified from simple to complex packaging lines. LSIS solution meets these customers' requirements and improves cost and manufacturing efficiency.

LSIS Packaging Automation Solution

BAGGING

A bagging machine is widely used in industries such as packaging tablets/pills, viscous liquid (lotion, shampoo, conditioner) and granules (instant coffee). Based on packing method of sealing a front and rear packaging plastic wrap, there are 2-sided, 3-sided and 4-sided bagging machines. The core function is to control synchronously the speed of supplying a packing plastic film and sealing it. AC drive controls film by supplying certain level of speed, which directly influences product manufacturing efficiency, and users control speed by using a touch panel (HMI). The first axis of EtherCAT servo drives runs at synchronous speed exactly by perceiving motor speed and the second axis corrects a mechanical error as it happens.

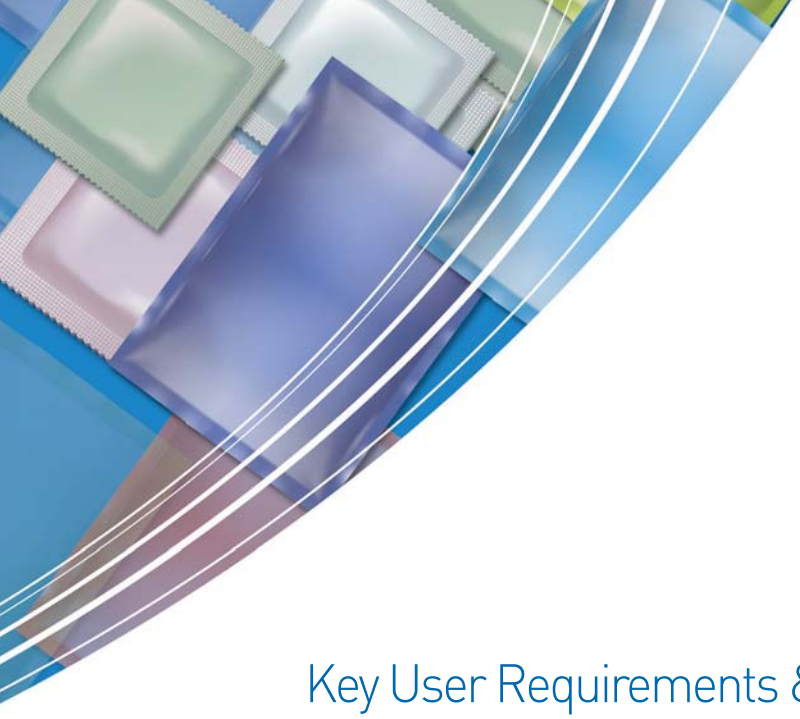


LSIS Package Solution

- HMI : **XP70-TTA**
- PLC : **XGK-CPUE**
- Servo Drive: **XDL-L7NA004B (×2)**
- Servo Motor : **XML-FB004ANK (400W ×2)**
- AC Drive: **SV015iG5A-2 (2HP)**

Applications

- Pharmaceuticals (Tablets/Pills)
- Food/Beverage
- Viscous Liquid (Lotion, Shampoo, Conditioner)
- Granules (Instant Coffee, Sugar)



Key User Requirements & LSIS Solution

Synchronous and Variable Speed Control

- Balancing up mechanical rate in a controller
- Controlling synchronous rate with PLC function
- Following up control for mechanical errors

LSIS PLC/servo system allows users to input data directly into a PLC positioning module without going through AC drive encoder output options. Also, using PLC application command, LSIS solution eliminates mechanical, provides exactly synchronous control and changes speed while in operation.

Network Type Servo System

- Building network type servo system at low costs
- Easy to use without additional motion CPU and program

LSIS PLC/servo system offers standard EtherCAT network (PN8B) and functions 2~8 axes linear interpolation, 2 axes circular arc and 3 axes helical interpolation. It supports 19 bit serial encoder, absolute positioning system and CAM control function with 8 block data production.

HMI

- Provides various PLC connection
- High reliability and quality screen interface
- Various functions and easy to use

To communicate with PLC, LSIS XGT Panel has various network connection (Ethernet, RS-232C, RS-485), which eliminates the need for any additional communication options. With path-through function, users read and re-write PLC program through HMI. LSIS HMI provides 65,536 full colors and wide view for user friendly monitoring.

Cost Effective Manufacturing

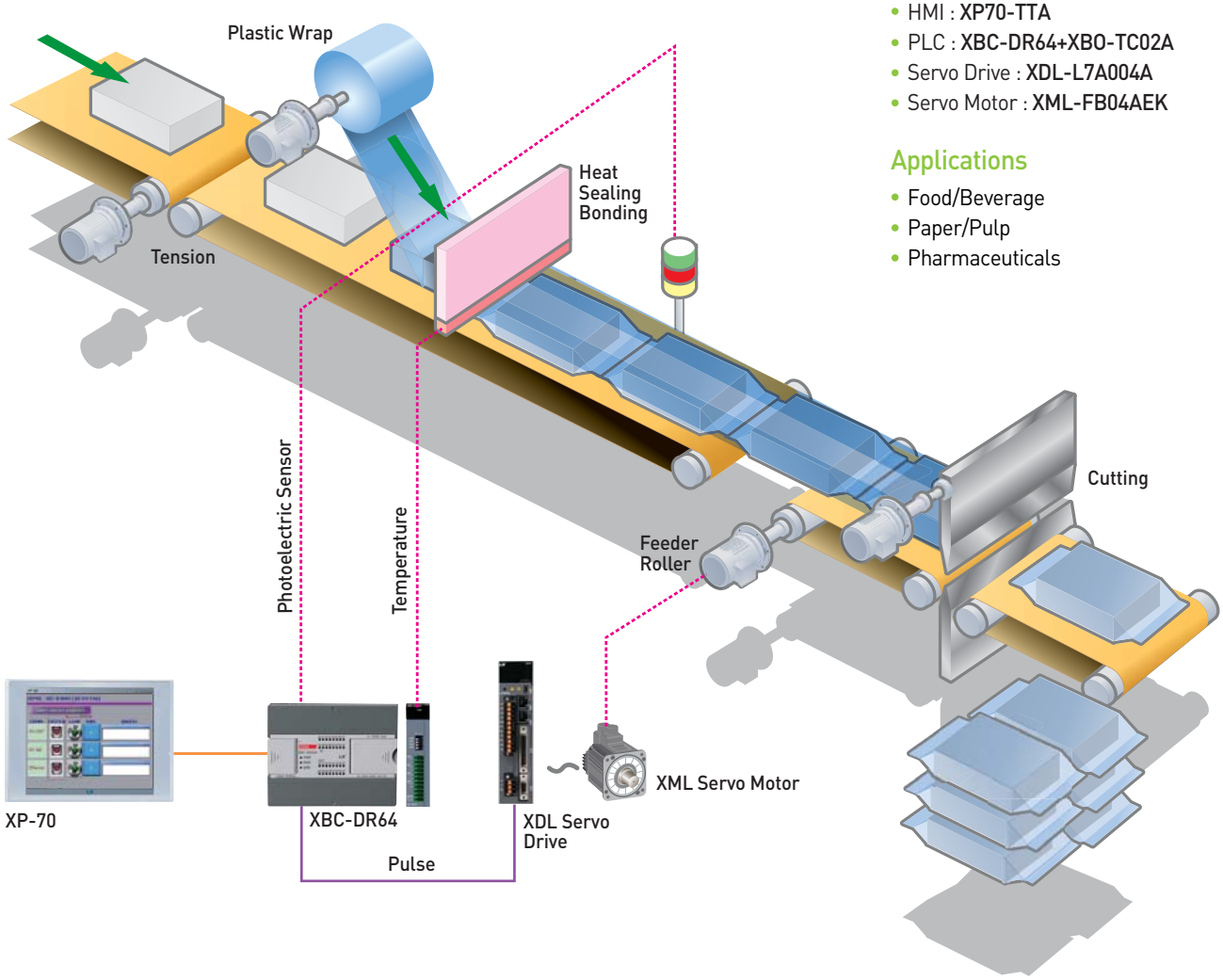
- High CPU process speed
- IEC or non-IEC type
- Free engineering software and various special modules

With LSIS 28ns/Step CPU processing speed, users can achieve 10% productivity growth from existing system. Also, LSIS PLC provides not only IEC type CPU but also non IEC (LSIS ladder programing) and software tools (XG5000 for PLC laddering, XG-PM for positioning and XP Builder for HMI).

LSIS Packaging Automation Solution

PILLOW PACKING

A cutting machine is a part of packaging system followed by pillow packing process.'It cuts a packaging plastic wrap to a certain size after packing a product and sealing it. While products move at very fast speed, a photoelectric sensor checks I-Mark and machine cuts products without delay, which is the core function of this cutting machine. In order that a photoelectric sensor checks I-Mark at high speed, this system uses pulse catching function and 1 pulse output axis for positioning. Pulse catching and positioning pulse output functions are implemented without any additional options given PLC built-in function. It has PID function which is built-in as well to measure temperature and maintain it for packaging wrap sealing.



LSIS Package

- HMI : **XP70-TTA**
- PLC : **XBC-DR64+XBO-TC02A**
- Servo Drive : **XDL-L7A004A**
- Servo Motor : **XML-FB04AEK**

Applications

- Food/Beverage
- Paper/Pulp
- Pharmaceuticals

Key User Requirements & LSIS Solution

Machine Performance

- Precision cutting and maintaining constant length
- Maintaining constant temperature for better bonding quality

With XGB PLC built-in functions, high performance from a cutting machine is achieved. XGB offers several models with various input/output points and it has pulse catching functions (P0~P7). XGB also provides PID control in a way of parameter setting and command which calculates P, I, D value with auto tuning.

HMI

- Provides various PLC connection
- High reliability and quality screen interface
- Various functions and easy to use

To communicate with PLC, LSIS XGT Panel has various network connection (Ethernet, RS-232C, RS-485), which eliminates the need for any additional communication options. With path-through function, users read and re-write PLC program through HMI. LSIS HMI provides 65,536 full colors and wide view for user friendly monitoring.

Easy to Use Servo Drives

- Setting network type servo system at low cost
- Easy to use without additional motion CPU and program
- Controlling speed while in operation

XGB has built-in positioning function which controls servo or stepping motors (2 axis / 100kpps) and 2 axis / 2Mpps is also available as an option module. It does not need any additional program but uses built-in parameter and commands.

Block Type PLC

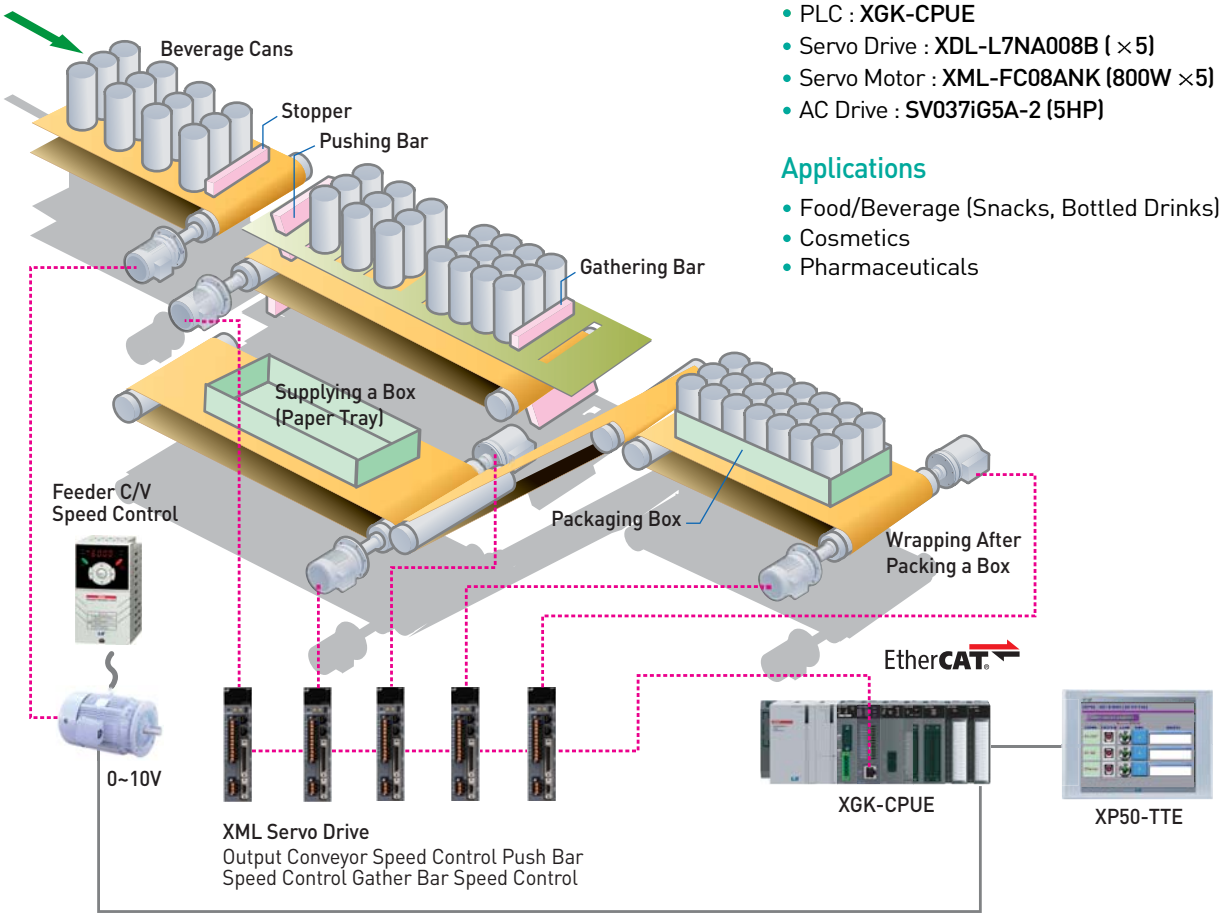
- Block PLC performance comparable with that of modular PLC
- High CPU process speed
- IEC or non-IEC type
- Free engineering software and various special modules

With max. 83ns/Step CPU processing speed, XGB(LSIS block type PLC) can operate floating-point and control varied range from 14 points to 384 points. Also, it is all in one PLC including PID, positioning, high speed counter, communication built-in functions and can be applied for various industrial applications. Users can select IEC or non IEC type and free software tools(XG5000) are provided.

LSIS Packaging Automation Solution

BOX PACKING (Paper Tray Packing)

A box packaging machine is a final stage of packaging process for delivering products (beverage cans) to customers. Users can select types of cans and control the speed of manufacturing (conveyor belt movement) through HMI. According to commands, various patterns of packaging operation are available. When a machine begins or stops, gathering and pushing bars should keep constant speed which 5 axes are synchronized. With EtherCAT network positioning module and servo drives, it controls 5 axes synchronization and CAM controlling function simplifies mechanical complexities by replacing a mechanical CAM and a differential gear.



LSIS Package Solution

- HMI : **XP50-TTE**
- PLC : **XGK-CPUE**
- Servo Drive : **XDL-L7NA008B (×5)**
- Servo Motor : **XML-FC08ANK (800W ×5)**
- AC Drive : **SV037iG5A-2 (5HP)**

Applications

- Food/Beverage (Snacks, Bottled Drinks)
- Cosmetics
- Pharmaceuticals

Key User Requirements & LSIS Solution

Synchronous and Variable Speed Control

- Maintaining certain speed and repeated operation
- Various pattern setting and repeated operation based on electronic CAM
- Precision positioning

LSIS provides various positioning commands including CAM control, 8 types of CAM data and user configurable CAM. Also, it repeats operations by using infinite loop and achieves precisely stopping positioning with I/O function in a PLC positioning module. In addition, max 8 axes positioning can replace motion system.

Easy to Use Network Type Servo System

- Setting network type servo system at low cost
- Easy to use without additional motion CPU and program
- Controlling speed during operation

LSIS PLC/servo system offers standard EtherCAT network (PN8B) and functions 2~8 axes linear interpolation, 2 axes circular arc and 3 axes helical interpolation. It supports 19 bit serial encoder, absolute positioning system and CAM control function with 8 block data production.

HMI

- Provides various PLC connection
- High reliability and quality screen interface
- Various functions and easy to use

To communicate with PLC, LSIS XGT Panel has various network connection (Ethernet, RS-232C, RS-485), which eliminates the need for any additional communication options. With path-through function, users read and re-write PLC program through HMI. LSIS HMI provides 65,536 full colors and wide view for user friendly monitoring.

Other Advantages

- Convenient PLC programming and servo parameter setting
- Compatibility among LSIS PLC or with other brand's program
- Provides software for using products and cost saving

Users do not need programming due to Flag function from a special module. This eliminates the need for additional software for positioning, servo parameter setting, auto-tuning and so forth as all software are included.

LSIS Packaging Automation Solution

TUBE FILLING

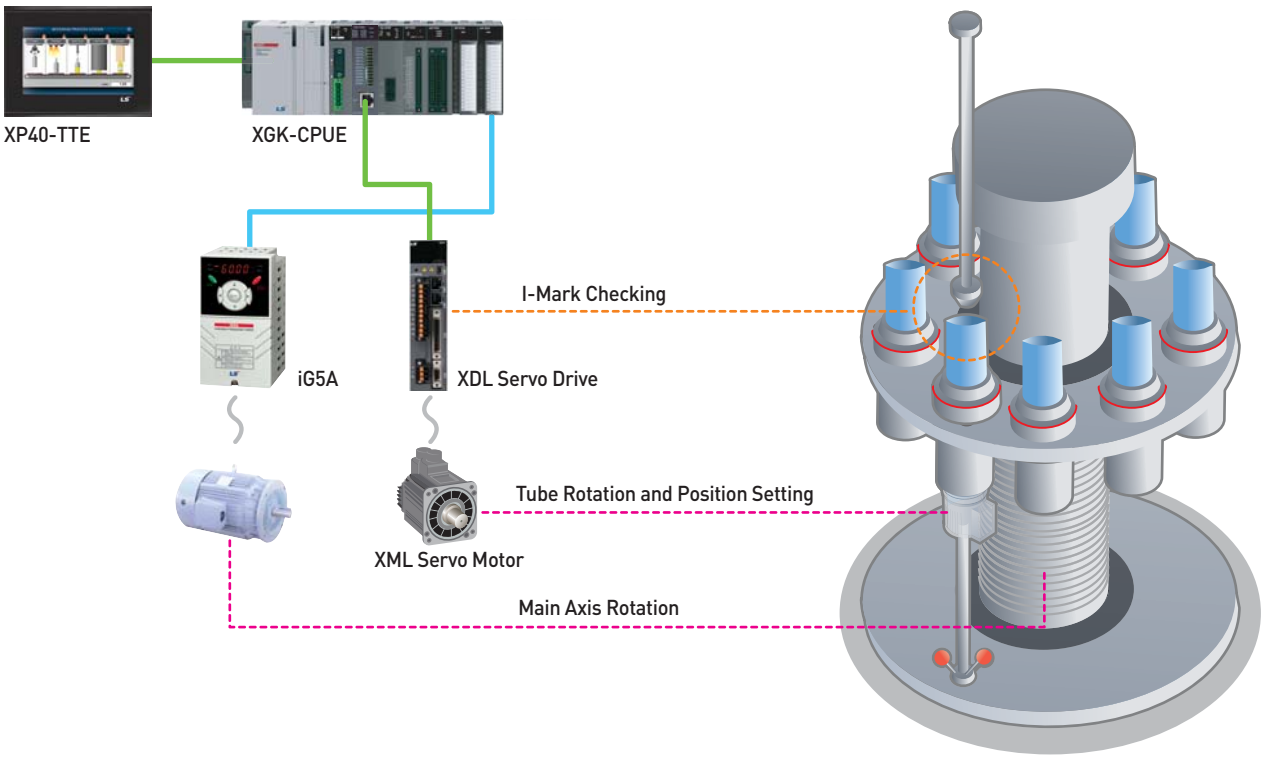
Tube filling is widely used for packing various daily necessities such as toothpaste, cosmetics, shampoo and even foods. Products are filled and sealed simultaneously in a single packaging line and for precision sealing, a machine checks I-Mark so that it catches sealing area/ position exactly. Regardless of packing materials, polyethylene, laminate and aluminum are available for this tube packaging process. Comparing with a machine which uses a clutch motor, LSIS solution improves performance and it provides more cost effectiveness and user friendly environment.

LSIS Package Solution

- HMI : **XP40-TTE**
- PLC : **XGK-CPUE**
- Servo Drive : **XDL-L7SA004B**
- Servo Motor : **XML-FB04ANK (400W)**
- AC Drive : **SV015iG5A-2 (2HP)**

Applications

- Daily Supplies & Necessities
- Viscous Liquid (Lotion, Shampoo, Conditioner)
- Cosmetics
- Foods



Key User Requirements & LSIS Solution

Servo Performance

- Stable and improved performance
- Precision positioning and fast response

LSIS servo system offers accurate position control and stability with high resolution serial type encoder (19bit) and reduces positioning decision time given high speed frequency response(1kHz). It also provides easy gain control as auto inertia measurement function is built-in.

Clutch motor replacement

- Frequent troubles and damages (a clutch motor)
- Dedicated PCB used so that it is hard to replace with general parts (a clutch motor)
- Servo system controlling in error range

Replacing from a clutch motor to servo system brings a lot of advantages to users. Also, Applying speed-positioning control, a machine can control regardless of tube position. It minimizes errors occurred by PLC scanning time with XPM speed-positioning control terminal.

HMI

- Provides various PLC connection
- High reliability and quality screen interface
- Various functions and easy to use

To communicate with PLC, LSIS XGT Panel has various network connection (Ethernet, RS-232C, RS-485), which eliminates the need for any additional communication options. With path-through function, users read and re-write PLC program through HMI. LSIS HMI provides 65,536 full colors and wide view for user friendly monitoring.

Cost Effective Manufacturing

- High CPU process speed
- IEC or non-IEC type and various special modules
- Free engineering software and various special modules

LSIS PLC offers various positioning solution from adding positioning module (XGK/I) to using built-in function (XGB) and it reduces engineering time given dedicated positioning commands and monitoring function. In addition, LSIS provides free software tools (XG5000 for PLC laddering, XG-PM for positioning and XP Builder for HMI) and simulation function from XG PM allows users for pre-test.

Green Innovators of Innovation

Safety Instructions

- For your safety, please read user's manual thoroughly before operating.
- Contact the nearest authorized service facility for examination, repair, or adjustment.
- Please contact qualified service technician when you need maintenance.
  Do not disassemble or repair by yourself !
- Any maintenance and inspection shall be performed by the personnel having expertise concerned.

LS IS Co., Ltd.

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HEAD OFFICE

LS Tower, 127, LS-ro, Dongan-gu, Anyang-si, Gyeonggi-do 431-848, Korea

■ Asia/South America	+82-2-2034-4888	cshwang@lsis.biz (Charles Hwang)
■ Western Europe	+82-2-2034-4676	sukyong@lsis.biz (Brian Choi)
■ CIS / Turkey / Eastern Europe / Israel	+82-2-2034-4879	dkimc@lsis.biz (Daniel Kim)
■ North America	+82-2-2034-4471	pikwon@lsis.biz (Paul Inbeom Kwon)
■ Oceania	+82-2-2034-4394	kacho@lsis.biz (Kendra Cho)
■ Africa	+82-2-2034-4467	myleed@lsis.biz (Henry Lee)
■ Middle East	+971-4-886-5360	khchoi1@lsis.biz (Lambert Choi)

Overseas Subsidiaries

- **LSIS(Shanghai) Co., Ltd. /CHINA**
  32nd Room 1~4, 32/F, Great Wall Building, No.3000 North Zhongshan Road,
  Putuo District, Shanghai, P.R. China
  Tel : 86-21-5237-9977(609) Fax : 86-21-5237-7189
- **LSIS(Dalian) Co., Ltd. /CHINA**
  No. 15, Liaohexi 3-Road, Economic and Technical Development zone, Dalian, P.R. China
  Tel : 86-411-8731-7542 Fax : 86-411-8730-7560 E-Mail : dskim@lsis.biz
- **LSIS(Wuxi) Co., Ltd./CHINA**
  102-A, National High & New Tech Industrial Development Area, Wuxi, Jiangsu, P.R. China
  Tel : 86-510-8534-6666 Fax : 86-510-8534-4078 E-Mail : sojin@lsis.biz
- **LS Hukai Electric(Hubei) Co., Ltd./CHINA**
  No. 100, Tanjiahe Road, Dianjun District, Yichang City, Hubei Province, P.R. China
  Tel : 86-717-667-7536 Fax : 86-717-667-7222 E-Mail : jaewoongh@lsis.biz
- **LS-VINA Industrial Systems Co., Ltd./VIETNAM**
  Room 1311, 13th, M3-M4 Building 91 Nguyen Chi Thanh street, Hanoi, Vietnam
  Tel : 84-4-6275-8055 Fax : 86-21-5237-7189
- **LSIS(ME) FZE/U.A.E.**
  LOB 19-205, JAFZA View Tower, Jebel Ali Free Zone, Dubai, United Arab Emirates
  Tel : 971-4-886-5360 Fax : 971-4-886-5361 E-Mail : shunlee@lsis.biz
- **LSIS Europe B.V./NETHERLANDS**
  1st. Floor, Tupolevlaan 48, 1119NZ,Schiphol-Rijk, The Netherlands
  Tel : 31-20-654-1420 Fax : 31-20-654-1429 E-Mail : junshickp@lsis.biz
- **LSIS Japan Co., Ltd./JAPAN**
  16th, Higashi-Kan, Akasaka Twin Tower, 2-17-22, Akasaka, Minato-ku, Tokyo, Japan
  Tel : 81-3-3582-9128 Fax : 81-3-3582-2667 E-Mail : jschuna@lsis.biz
- **LSIS USA Inc./U.S.A.**
  2000 Millbrook Drive, Lincolnshire, Chicago, IL 60069, United States of America
  Tel : 847-941-8240 Fax : 847-941-8259

Overseas Branches

- **LSIS Shanghai Office/CHINA**
  Room E-G, 12th, Huamin Empire Plaza, No.726, West Yan'an Road, Shanghai, P.R. China
  Tel : 86-21-5237-9977(702) Fax : 86-21-5237-7189
- **LSIS Beijing Office/CHINA**
  Room 2306, Building B Landgent Center, No.24 Middle Road, East 3rd Ring Road,
  Chaoyang District, Beijing, P.R. China
  Tel : 86-10-5761-3127 Fax : 86-10-5761-3128 E-Mail : htroh@lsis.biz
- **LSIS Guangzhou Office/CHINA**
  Room 1403, 14th, New Poly Tower, 2 Zhongshan Liu Road, Guangzhou, P.R China
  Tel : 86-20-8326-6784 Fax : 86-20-8326-6287 E-Mail : sojhtroh@lsis.biz
- **LSIS Qingdao Office/CHINA**
  Room 2001, Galaxy Building, 29 ShanDong Road, ShiNan District, QingDao, ShanDong, P.R. China
  Tel : 86-532-8501-6058 Fax : 86-532-8501-6057 E-Mail : htroh@lsis.biz
- **LSIS Chengdu Office/CHINA**
  Room1710, 17/F Huamin Empire Plaza, NO.1 Fuxin Road, Chengdu, P.R. China
  Tel : 86-28-8670-3201 Fax : 86-28-8670-3203 E-Mail : yangcf@lsis.biz
- **LSIS ShenYang Office/CHINA**
  Room 803, Hongyuan Building, 52 South Nanjing Road,Heping District, Shenyang, P.R. China
  Tel : 86-24-2321-9050 Fax : 86-24－8386-7210 E-Mail : yangcf@lsis.biz
- **LSIS Jinan Office/CHINA**
  Room 417, Chuangzhan Center, No. 201, Shanda Road, Lixia District, Jinan, Shandong, P. R. China
  Tel : 86-531-8263-8026 Fax : 86-531-8263-8027 E-Mail : yangcf@lsis.biz
- **LSIS Tokyo Office/JAPAN**
  16th, Higashi-Kan, Akasaka Twin Tower, 2-17-22, Akasaka, Minato-ku, Tokyo, Japan
  Tel : 81-3-3582-9128 Fax : 81-3-3582-2667
- **LS-VINA Industrial Systems Hochiminh Office/VIETNAM**
  4th, Yoco Building, 41 Nguyen Thi Minh Khai Street, Hochiminh City, Vietnam
  Tel : 84-8-3822-7941 Fax : 81-84-8-3822-7942 E-Mail : sjbaik@lsis.biz
- **LSIS Detroit Office/U.S.A.**
  5700 Crooks Rd, Suite 211, Troy, MI 48098, United States of America
  Tel : 1-248-792-2637~8 Fax : 1-248-792-2642t E-Mail : sylee@lsis.biz
- **LSIS Gurgaon Office/INDIA**
  109 First Floor, Park Central, Sector-30, Gurgaon- 122 002, Haryana, India
  Tel : +0091-124-493-0070 Fax : 91-1244-930-066 E-Mail : hwyim@lsis.biz

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